

**REMARKS**

Claims 1, 2, 5 and 14 are amended to improve grammar, and provide proper antecedence, fully in accord with the original specification. Claims 1-14 remain pending upon entry of the amendments, with claim 1 being independent.

The earlier submitted substitute specification (submitted on April 22, 2009) has been amended to include cross-reference information and to correct a spelling error. No new matter has been entered.

**Objection to Claim 5**

Claim 5 was objected due to a spelling error. Claim 5 has been amended to correct this error and recites "international or intercontinental train control between..." Withdrawal of this objection is requested.

**Rejection of claims 1-14 under 35 U.S.C. § 112, first paragraph**

The Examiner object to claim 1, as amended, indicating that "...the optimum frequency... is selected by the automatic train protection stop (ATPS) device..." The Examiner stated that the elements mentioned above are not adequately described in paragraphs 0071-0072 of the originally filed specification, published as 2007/0100517, hereinafter referred to as Applicant's original specification.

In this regard, claim 1 has been amended to recite "wherein a frequency for transmitting information from the K-Balise to the on-board equipment is selected by the ground equipment according to an amount of data that is to be transferred in a

time period that is available to make the data transfer". Support for this amendment is found in at least paragraphs 0019 and 0047, in addition to paragraphs 0071-0072 of the Applicant's original specification.

In addition, claim 1 has been amended to recite an ATS beacon (instead of an ATS member), for consistency with Applicant's original specification.

In view of the amendments to claim 1, withdrawal of this rejection is requested.

**Rejection of claims 1-14 under 35 U.S.C. § 112, second paragraph**

With regard to claim 1, the Examiner indicated that it was unclear which element of the claims selected an optimum frequency to... In this regard, claim 1 has been amended to recite "wherein a frequency for transmitting information from the K-Balise to the on-board equipment is selected by *the ground equipment* according to an amount of data that is to be transferred and a time period that is available to make the data transfer", in accord with paragraphs 0019 and 0047 of the original specification. Paragraph 0047 of the original specification states that "the ATS beacon (11) of the ground equipment generates the frequency..."

Withdrawal of the rejection of claim 1 is requested, as well as withdrawal of the rejection of claims 2-14 that depend from claim 1.

With regard to claim 2, the Examiner indicated that "the main device" lacks antecedent basis. The Examiner is directed to claim 1, line 4, which recites "a main

device". Hence withdrawal of this rejection is requested. Withdrawal of the rejection of claim 2 is requested, as well as withdrawal of the rejection of claims 3-6 and 14 that depend from claim 1.

**Rejection of claims 1-10 and 12-14 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication 2004/0006413 (hereinafter, *Kane et al.*) in view of U.S. Patent No. 6,349,116 (hereinafter, *Hash et al.*)**

Applicant respectfully traverses this rejection.

With regard to independent claim 1, the Examiner seeks to modify the reference to Kane et al. according to Hash et al. in order to derive all of the elements claimed in independent claim 1.

With regard to the reference to Kane et al. the Examiner alleged that since Kane et al. utilizes transponders, the use of transponders suggests the use of balises, and stated that Kane et al. discloses the functional equivalent of the K-Balise as claimed and anticipates the embodiment. Applicant respectfully disagrees.

The Examiner is directed to paragraph 0002 of the Applicant's original specification, which states that a device transmitting ground information for an automatic train stop is called a Balise, and that the Balise is a device for transmitting or using data communication, ground information, such as ground operation conditions, distant and position of the beacon and a target speed from a ground equipment to an on-board equipment. In addition, paragraph 0003 of Applicant's original specification states that the K-Balise is adapted as a part of the current ATP

(automatic train protection) is a Balise integrating a beacon, a tag (transponder or loop coil), card or terminal. Therefore, the K-Balise is a device that includes many elements that are integrated, apart from a mere transponder. The reference to Kane et al. does not teach a K-Balise.

The reference to Kane et al. is directed to a train control system that includes positioning systems at the end of the train and at the front of the train, that allows the conductor or engineer to determine that no cars of the train have become detached, and the positioning system at the end of the train is used to verify that the entire train has cleared a block, and this information can be relayed to a dispatcher, thereby eliminating the need for track side sensing equipment (abstract of Kane et al.)

The Examiner alleged that the claimed "a program part for inputting the ground information to the K-Balise" is disclosed in paragraph 8 of Kane et al. However, paragraph 8 of Kane et al. mentions no program part, and the remainder of the disclosure is silent as to a program part.

The Examiner acknowledged that the reference to Kane et al. does not disclose an optimal frequency to transmit information from the K-Balise to the on-board equipment that is selected by the Automatic Train Protection Stop (ATPS) device based on data that is to be transferred in a time period that is available to make the data transfer.

This portion of claim 1 has been amended to recite "wherein a frequency for transmitting information from the K-Balise to the on-board equipment is selected by the ground equipment according to an amount data that is to be transferred and a

time period that is available to make the data transfer”, in order to overcome the rejection under 35 U.S.C. 112 (see arguments above with regard to the rejection of claim 1 under 35 U.S.C.112).

The reference to Hash et al. is directed to a non-propagating magnetic field-based communication system that transmits and receives digital data within a limited coverage area environment, wherein the system includes a compact transmitter unit affixed to an object, and a digital detector/demodulator unit (see abstract of Hash et al.). The device of Hash et al. requires a transmitter unit 1 and a receiver unit 2, as well as a magnetic field 3, as illustrated in Figure 1 of Hash et al.

In contrast, the device of an exemplary embodiment of the present application operates at long distances beyond any magnetic field-based communication system. In addition, the Examiner will note that the base reference to Hash et al. requires a transmitter unit having both an analog part and a digital part 10, 20 that are powered by a battery 12. In contrast, the K-Balise embodiment of the present application does not require a direct power supply such as a battery.

The reference to Hash et al. does not cure the deficiencies of Kane et al. as discussed above, and further modification of Kane et al. according to Hash et al., in the manner suggested in the office action will not result in all of the claimed elements of independent claim 1. Hence, withdrawal of the rejection of independent claim 1 is requested, as well as the withdrawal of the rejection of claims 2-14 that depend from claim 1.

**Rejection of claim 5 under 35 U.S.C. § 103(a) as being unpatentable over *Kane et al.* and *Hash et al.*, as applied to claim 1, and in further view of U.S. Patent Application Publication 2004/0006413 (hereinafter, *Lacote*)**

Applicant respectfully traverses this rejection. With regard to claim 5, the Examiner acknowledged that Kane et al. as modified by Hash et al. does not teach the specific elements of claim 5. The Examiner cited the reference to Lacote for the sole purpose of teaching the elements specified in claim 5. Lacote does not cure the deficiencies of Kane et al. and Hash et al., with regard to independent claim 1, from which claim 5 depends. Hence withdrawal of this rejection is respectfully requested.

**Rejection of claim 11 under 35 U.S.C. § 103(a) as being unpatentable over *Kane et al.* and *Hash et al.*, as applied to claim 1, and in further view of U.S. Patent No. 6,823,242 (hereinafter, *Ralph*)**

Applicant respectfully traverses this rejection. With regard to claim 11, the Examiner acknowledged that Kane et al. as modified by Hash et al. does not teach the specific elements of claim 11. The Examiner cited the reference to Ralph for the sole purpose of teaching the elements specified in claim 5. Ralph does not cure the deficiencies of Kane et al. and Hash et al., with regard to independent claim 1, from which claim 5 depends. Hence withdrawal of this rejection is respectfully requested.

**Conclusion**

In view of the above, it is believed that the above-identified application is in condition for allowance, and notice to that effect is respectfully requested. Should the Examiner have any questions, the Examiner is encouraged to contact the

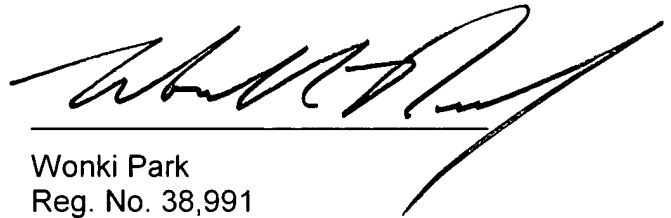
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undersigned at the telephone number indicated below.

The Commissioner is authorized to charge any fees or credit any overpayments which may be incurred in connection with this paper to Deposit Account No. 18-2220.

Respectfully submitted,

Date: October 5, 2009

A handwritten signature in black ink, appearing to read 'Wonki Park', is written over a horizontal line.

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